Testimony

of

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before the

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of the

Committee on Energy and Commerce

House of Representatives

on

Science and Mission at Risk: FDA's Self Assessment

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Mr. Chairman and Members of the Subcommittee, I am Gail H. Cassell, Vice President for Scientific Affairs and a Distinguished Research Scholar for Infectious Diseases of Eli Lilly and Company and Professor. I am also Professor and Chairman Emeritus of the Department of Microbiology of the University of Alabama Schools of Medicine and Dentistry. I am a member of the Institute of Medicine of the National Academy of Sciences and am currently serving a second term on the governing board of the IOM. Of relevance to my testimony today, I have previously been a member of the Advisory Committees of the Directors of both the Centers for Disease Control and the National Institutes of Health. I also co-chaired the Congressionally mandated review of the NIH intramural program. I appear before you today as a member of the FDA Science Board, Advisory Committee to the FDA Commissioner. I served as Chair of the Subcommittee on Science and Technology of the Science Board, which authored the report "FDA Science and Mission at Risk".

In December 2006, the Commissioner charged the Science Board with establishing a subcommittee to assess whether FDA's current science and technology can support the agency's statutory mandate to protect the nation's food and drug supply. The subcommittee was comprised of three Science Board members and 30 other experts. The subcommittee formally presented its report to the Science Board and FDA on December 3.

The report was unanimously endorsed by each of the 33 members of the Subcommittee and the full Science Board. On December 3, the Science Board accepted the report as final and dissolved the subcommittee. The record of the proceedings of that meeting will show that due to the seriousness of the deficiencies found and the urgency of the situation, the Science Board was adamant that the report be broadly disseminated among the public and policy makers, including posting it in the Federal Register.

The subcommittee review was unique in many respects. First, it is only the second time in over a century that the agency has been reviewed by an external committee as a whole entity. Second, the committee was composed of leaders, not from a single sector, but from industry, academia, and other government agencies. The expertise and level of accomplishments of the members are almost unprecedented in a single committee, especially considering their breadth and knowledge in regulatory science and understanding of the mission of the agency.

The subcommittee included expertise ranging from a Nobel laureate in pharmacology, 14 members of the National Academy of sciences (including two engineers), a renowned economist and specialist in workforce issues, a leader in health care policy and technology assessment, a former CEO of a large pharmaceutical company, a former Assistant Secretary for Health and Human Services who also headed global regulatory affairs within a large company for over 20 years, a former Chief Counsel for the FDA, and the first under Secretary for Food Safety at the U.S. Department of Agriculture

overseeing the Food Safety and Inspection Service and coordinating U.S. government food safety policy.

For over a year, this group of experts worked intensively for thousands of hours, including many nights, week-ends, and holidays conducting their review. It was the norm, not the exception, that when we met, even by teleconference, we would have as many as 30 members actively engaged in discussion for over two hours. Let me assure you, this level of engagement by so many very busy people with diverse expertise is rare in such a committee let alone that there would be such rapid consensus about its findings. How then do you explain the consensus and commitment to this exercise?

It became rapidly apparent that the FDA suffers from serious scientific deficiencies and is not positioned to meet current or emerging regulatory responsibilities. It is agency wide, i.e. not limited to a single program or Center. Since every regulatory decision must be based upon the best available scientific evidence in order to protect the public's health, we concluded that American lives are at risk and that there is an urgent need to address the deficiencies. The level of concern by all members of the Subcommittee and the Science Board members was, and remains, high…and thus the intensity of their commitment to this review and their insistence that the findings be broadly communicated.

What we found is quite simply, demands of FDA have soared over the past two decades. Resources have not! Furthermore, we found that the Agency has not adapted in order to

maximize existing resources by capitalizing upon the scientific resources in the academic community and other government agencies. The demands upon FDA have soared due to the extraordinary advance of scientific discoveries, the complexity of the new products and claims submitted to FDA for pre-market review and approval, the emergence of challenging safety problems, and the globalization of the industries that FDA regulates. The result is that the scientific demands on the Agency far exceed its capacity to respond. This imbalance is imposing a significant risk to the integrity of the food, drug, cosmetic and device regulatory system, and hence the safety of the public.

Briefly the Sucommittee found that:

- The FDA cannot fulfill its mission because its scientific base has eroded and its scientific organizational structure is weak.
- There is a fire-fighting regulatory posture instead of pursuing a culture of proactive regulatory science, especially related to food safety. Consequently, The nation's food supply is at risk.
- FDA cannot adequately monitor development of new medical products and adequately evaluate the safety of existing products because it is unable to keep up with scientific advances (genomics and related areas of science, wireless healthcare devices, nanotechnology, medical imaging, robotics, cell- and tissue-based products, regenerative medicine, and combination products).
- The FDA cannot fulfill its mission because its scientific workforce does not have sufficient capacity or capability.

- The FDA cannot fulfill its mission because its information technology infrastructure is sorely inadequate. It is problematic at best—and at worst it is dangerous.

Although our Subcommittee was asked to review gaps in scientific expertise and technology and not to assess available resources, it rapidly became apparent that the gaps were so intertwined with two decades of inadequate funding that it was impossible to assess gaps without also assessing resources. Our Subcommittee, therefore, spent considerable effort garnering as much information as possible about the current roles and responsibilities of Agency staff, available resources, the current status of science within the Agency, and the implication of emerging science for the future of FDA and the public's health.

Specifically, we found that FDA's shortfalls have resulted in a plethora of inadequacies that threaten our society—including, but not limited to:

- inadequate inspections of manufacturers
- a dearth of scientists who understand emerging new technologies,
- inability to speed the development of new therapies,
- an import system that is badly broken,
- a food supply that grows riskier each year, and
- an information technology infrastructure that was identified as a source of risk in every Center and program reviewed by the Subcommittee.

We concluded that FDA can no longer fulfill its mission without substantial and sustained additional appropriations. The current situation has developed over many years, the question is not why or how we got here but rather how do we strengthen FDA going forward? Our subcommittee strongly believes our report provides the required blueprint.

The report is unique in yet another important way. It not only provides an assessment by a rigorous review of the Agency by a diverse team of experts from the public and private sectors, but it also includes a simultaneous assessment by leaders of the FDA (as contained in Appendices L-M). Our Subcommittee requested staff to not only identify science and technology gaps but to link each directly to their specific regulatory mission. This comprehensive external/internal analysis--done at the same point in time for an entire Agency--is indeed rare.

We recognize that adequate resources—human and financial—alone will not be sufficient to repair the deteriorating state of science at FDA, which is why our committee also recommended significant restructuring. But without a substantial increase in resources, the Agency will be unable to meet either the mandates of Congress or the expectations of the American public, regardless of management or leadership changes. Our findings are supported by many recent GAO reports as you will hear today as well as recent reports form the National Academy of Sciences.

It is now time for the reviews to stop and to take the necessary action to correct the deficiencies. First and foremost, there must be a strong commitment on the part of the FDA to undergo the structural changes recommended in this and previous reports to strengthen the scientific base of the agency and to recruit and retain the most outstanding leaders in Regulatory Science. The American public and Congress deserve no less. Then, Congress and the Administration need to provide the necessary resources to bring the Agency into the 21st Century.

On behalf of our Subcommittee, we thank Chairmen Stupak and Dingell and ranking members Barton and Shimkus for holding this hearing and for your recognition of the seriousness of the deficiencies we have identified and the urgency with which they need to be addressed.

Please be assured that our findings and recommendations were made in the spirit of deep respect for the FDA and for its dedicated service to public health provided 24/7. We fully recognize the extraordinary efforts of the committed FDA staff. It is apparent that they are the very reason further catastrophic food and drug events have been averted. The urgency of our advisory is simply predicated upon the fact that we see signs of an increasingly chaotic environment descending upon FDA, and the need to address the deficiencies we identified. Without immediate action, injuries and deaths from an overwhelmed regulatory system are certain, and the costs to our society will be far greater than any dollar figure upon which we can arrive at. I have attached a synopsis of our Subcommittee report to my statement and request that it be included in the recording

of this hearing. Other members of the Subcommittee here with me today will summarize the most important findings and those in need of the most urgent attention.

FDA SCIENCE AND MISSION AT RISK

Synopsis of A REPORT OF THE FOOD AND DRUG ADMINISTRATION'S SCIENCE BOARD

DECEMBER 2007

Introduction

The Food and Drug Administration's (FDA) Science Board is an advisory committee to the Commissioner of FDA, chartered to assist the agency on a range of scientific matters, one of which is how the agency's scientific capabilities can be maintained so as to ensure that the agency can carry out its increasingly complex responsibilities. In December 2006, Commissioner of Food and Drugs Andrew VonEschenbach charged the Science Board with establishing a subcommittee to assess whether FDA's current science and technology can support the agency's statutory mandate to protect the nation's food and drug supply. The subcommittee was comprised of three Science Board members, complemented by 30 other experts from industry, academia, and other government agencies. Upon its completion after a year of intensive examination of FDA's programs and organization, the subcommittee's report was unanimously endorsed by all 33 members of the Subcommittee and the full Science Board. As the report's title suggests, the Board has concluded that FDA is an agency at risk of failing to carry out its mandate, and thus the nation and its citizens are at risk of grievous harm if the FDA is not committed to greatly strengthening its scientific base and if it is not given the means to ensure the safety of our foods, drugs, medical devices and other consumer products for which FDA is responsible.

A Successful FDA is Essential to a Safe Society

There is no more quintessential governmental responsibility than the protection of basic commodities of American life such as our foods and drugs. That fact was recognized over a century ago, when Congress created the Food and Drug Administration as one of the nation's first regulatory agencies. The Science Board report emphasizes that the need for an effective FDA is greater than ever before: FDA regulates 80% of the nation's food supply; plays a critical role in assuring the safety of therapeutic such as drugs, vaccines, and medical devices; regulates a vast number of other consumer products, ranging from television sets and cellular telephones to cosmetics, blood, and pet food; and has historically been the agency to which governments around the world look to make determinations about the safety of new products. Moreover, FDA is increasingly important to the nation's economic health, as it regulates a quarter of consumer expenditures, and the industries it regulates are innovative leaders in science and technology and among the few American industries with a positive trade balance with other nations. Further, FDA will be a critical component in combating emerging threats such as intentional contamination of the food supply and the threat of chemical, biological and radiological attack—as well as naturally occurring threats such as SARS, West Nile virus, Mad Cow disease and avian influenza.

FDA's Exemplary Record Must be Maintained

Throughout most of its 100+ years existence, FDA has been recognized as one of the Federal government's most respected and trusted entities. The agency led the way in creating an effective, science-based "safety net" for consumer products. FDA's record of accomplishment is a long and distinguished one: new drugs are approved for marketing

as fast or faster than anywhere else in the world; state-of-the art standards for safe food production have been established; a nascent medical device industry was helped to develop and grow into one of our most innovative; FDA decisions and procedures have been emulated by country after country around the world; products were labeled so as to give physicians and consumers reliable information about the products they prescribe and use; polls have consistently placed FDA at the top of any list of most trusted Federal agencies; and threat after threat was taken on and defeated, from unsafe pesticide use to improperly manufactured drugs to radiation emitted from a host of consumer products. FDA's scientists are widely considered among the most skilled and dedicated of our civil servants, and their commitment to excellence is unequaled.

A Record of Success is Threatened

The FDA Science Board concluded that FDA's rich tradition of excellence has been slowly and steadily "hollowed out" by a failure of the Agency to strengthen its scientific organizational structure and by progression of budget cuts and inattention to the agency's needs. That deterioration, in turn, means that not only can the agency not fulfill its public health mission, but that the safety of our citizens and the well being of our economy are being undermined. Further, as the agency falls farther and farther behind, the public is increasingly losing confidence in the government's ability to protect them—already more and more citizens turn to unproven therapies that have not been subjected to FDA's rigorous scientific standards; and states are stepping in to regulate in FDA's absence, portending a balkanized, inefficient regulatory system without one national set of safety standards.

More specifically, the Board has identified a range of problems and program areas that need immediate attention, including the following:

- The demands upon the FDA have soared due to the extraordinary advance of scientific discoveries, the complexity of the new products and claims submitted to FDA for approval, the emergence of heretofore unknown health threats, and the globalization of the industries that FDA regulates. The metrics alone are daunting, for example, 125 new statutes added to FDA's workload by Congress in the past two decades, most without resources to implement them; 375,000 establishments making FDA-regulated products; a tripling in a decade of R&D in drugs and medical devices; an exponential increase in drug adverse reaction reports; and the emergence in recent years of extraordinary new health threats, such as SARS, *E coli* 0157H:7, AIDS, BSE, and many more. Perhaps most emblematic of this trend is the ten fold increase in the past decade of imports from other countries. Today, 15% of our food supply is imported from more than 100 nations, along with over half of our drugs, yet FDA has been given virtually no new authorities nor resources to address a dramatic change in the sourcing (and associated risk) from products made overseas, often in developing countries with little or no tradition of scientific rigor.
- FDA's resources have not only not kept pace with its responsibilities, many critical agency programs have sustained actual cuts. For example, FDA's food headquarters program has lost 20% of its scientists in just the past three years, despite an upswing in outbreaks of foodborne disease in the United States and a steady increase in contaminated seafood, produce and other

foods being imported from foreign countries. Similarly, FDA has lost several hundred inspectors due to budget cuts since 2003, leaving the agency not only incapable of inspecting domestic manufacturers but also ensuring that most of the nation's ports have no FDA inspectors. Although one FDA function, new drug and device review, has received additional funding from industry-paid user fees, the agency as a whole as lost 1000 people over the past decade.

- Innovations and advancements in science are outstripping FDA's capacity to understand and regulate them, threatening not only the safe introduction of new technologies but also American leadership in pharmaceuticals, vaccines, biotechnology, and medical devices. The United States is on the cusp of another "revolution" in therapeutics that holds great promise for effective treatments of cancer, Alzheimer's, Parkinson's, and other previously incurable conditions. Breakthroughs in human genome research, molecular biology, nanotechnology, food processing technology, computational mathematics, *in vivo* imaging and many more are likely to change the face of medicine and food production, yet FDA has not been given the capacity to prepare for those breakthroughs. Tens of billions of dollars are being spent by both the public and private sector on the development of such products, yet FDA has been denied the relatively minor funding necessary to ensure their rapid and safe entry to market. At a time in which U.S. competitiveness in science, medicine, and food production are under increasing strain from

overseas, a weak and under funded FDA will be a brake on the very technologies that the United States is relying upon for its medical and technological future. Furthermore, they have gaps in major areas of scientific expertise and they are no longer able to recruit the best and brightest in regulatory science nor to retain the ones them if recruited.

- FDA cannot ensure the safety of our food supply. It is difficult for leading scientists to reach such a dire conclusion, but the report's authors saw a food safety system in which basic inspection, enforcement, and rulemaking functions have been severely eroded, as has the agency's ability to respond rapidly to foodborne disease outbreaks and to keep pace with new regulatory science. FDA's food safety program is characterized as one steadily dropping in staffing, and in funding for essential functions such as development of its scientists and travel to scientific fora. The inspection rate of food processors can only be described as "appalling," resulting from budget cuts for food safety that has brought the agency from doing 35,000 domestic food inspections in 1973 to fewer than 8000 this year (meaning FDA inspects most facilities on average only every ten years). The foreign inspection rate is even worse, as the agency may manage to inspect a dozen foreign food manufacturers on 2008, despite the thousands of overseas producers sending food to our shores. The agency has no resources to conduct inspections of retail food establishments or of food-producing farms. Moreover, as FDA's leadership in food safety erodes, other countries are presenting themselves as

the appropriate model for food safety standard setting, even though such standards can be unscientific and disguised trade barriers, to the detriment of principles of sound science and to market access for American food exports.

- FDA's Information Technology systems are woefully outdated and inadequate, posing a concrete threat to the agency's public health mission. The report's authors were extremely disturbed by the state of FDA's IT infrastructure. They found a situation problematic at best, at worst dangerous. Many of FDA's systems are far beyond their expected life span, and systems fail frequently (even email systems are unstable). Reports of product dangers are not rapidly compared and analyzed, inspectors' reports are still laboriously hand written, and the system for managing imported products cannot communicate with Customs and other government systems. These inadequacies do not only cause inefficiencies and waste, but more importantly mean that dangers lurking in information coming to the FDA are simply missed—such as drug adverse reactions that are duly reported but not flagged for attention due to incapacities in information management.

CONCLUSION

The findings and recommendations of the Science Board are not novel. Recent studies by the Institute of Medicine of the National Academy of Sciences, Congressional committees, the Government Accountability Office and other expert bodies have documented FDA's shortfalls and the resulting public health threat. It is now time for the

examinations to stop and to take action. FDA's resource constraints cannot be reversed without a determined effort by Washington decision makers to rebuild this bulwark of our system of consumer protection. The report makes recommendations for significant restructuring of science at the FDA but it is also apparent that management nor leadership changes can be expected to have a significant impact, in the absence of very significant increases in resources. Without action, injuries and deaths from an overwhelmed regulatory system are certain, and the costs to our society will be far greater than any dollar figure upon which we can arrive at.